

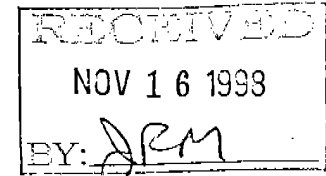
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November 13, 1998

Bruce Halstead, US Fish & Wildlife Service  
1125 16th Street, Room 209  
Arcata, CA 95521



Re: Permit numbers PRT-828950 and 1157.

John Munn  
California Department of Forestry  
1416 Ninth Street  
Sacramento, CA 95814

Re: SYP 96-002

Dear Mr. Halstead and Mr. Munn:

On behalf of my clients, Sierra Club-California and Environmental Protection and Information Center (EPIC), I wish to submit this comment letter into the public record regarding the Pacific Lumber Company draft Habitat Conservation Plan/Sustained Yield Plan. For the record, I am a California registered professional forester (#2228) with over 25 years of professional experience in public and private forest land management. A copy of my resume is attached to this comment letter.

For the reasons detailed below, it is my considered judgement that the draft HCP/SYP is fundamentally flawed, both procedurally and substantively. In particular, the combined HCP/SYP document fails to incorporate data and analyses expressly required under Section 1091 of the California Forest Practice regulations. From the standpoint of the federal Endangered Species Act, the HCP component of the PL combined document utterly fails on its face "to ensure the continued health of the biological communities on PALCO's property and to minimize and mitigate impacts of PALCO activities on individual species.

## THE AQUATIC HABITAT CONSERVATION STRATEGY IS INADEQUATELY PRESENTED TO THE PUBLIC AND OF INDETERMINATE EFFICACY

I have reviewed the 6-volumes comprising the draft Pacific Lumber HCP/SYP, with particular attention paid to the aquatic habitat conservation strategy intended for application to the watercourse zones within PL's property. As well, I have focused my review on the proposed timber management program, including but not limited to activities within the watercourse zones.

My review of the draft HCP/SYP has confirmed that little has been offered by PL in the way of quantitative, site-specific information pertaining to existing stand-level conditions within riparian management zones and in upland zones and how they are projected to change in response to planned activities such as timber harvesting, yarding, and road building. The draft plan is replete with lengthy and repetitive summary discussions of the relevant scientific literature, at least as selected by PL's consultants. The draft plan also presents summary tabular and graphical indices on ownership-wide and watershed assessment area-wide activities and future conditions. But, the draft plan is essentially lacking in stand-level data that would enable the reviewer to ascertain the nature of changes to specific locales within the ownership, such as selected watercourse zones. To the extent allowed by the information that has been presented in the draft plan, I have attempted to infer likely future conditions within the riparian management zones (RMZ).

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A major hindrance to developing definitive assessments of future forest conditions is that the HCP incorporates multiple escape clauses, variances and exceptions to the proposed mitigative prescriptions. As detailed below, the HCP is essentially presenting a 3-year interim set of prescriptions that are all subject to revision upon completion of "watershed analyses."<sup>1</sup> Their interim nature aside, the mitigative prescriptions also contain language that casts further doubt as to PL's ultimate actions upon the landbase; clauses such as: "where practicable" and "when feasible."

### **Planned Activities Within Watercourse Zones are Inadequately Presented in the Public Review Document**

The HCP presents an aquatic habitat conservation strategy that prescribes various limitations and constraints on timber management activities within defined buffer zones around all mapped watercourses. Prescriptions are tailored to watercourse categories, as classified under the California Forest Practices Act: Classes I through III (Class IV watercourses (man-made) are not separately treated in the HCP). The aquatic habitat conservation strategy is presented in Volume I (pp. 56-68) and Part D of Volume IV.

The prescriptions comprising the aquatic conservation strategy are expressly stipulated by PL as interim measures until completion of watershed analyses, to be conducted according to a modified version of the Washington State protocols. The procedural modifications are not described in the HCP. PL depicts the interim prescriptions as "one size fits all" that are, by definition, inferior to "customized" prescriptions that will come out of the watershed analyses. This depiction leaves the reader with the clear impression that PL intends to abandon the interim prescriptions at the earliest opportunity. Bounds (termed maximum and minimum sideboards) are set forth in the HCP (Volume IV, Part D, Section 4) as to the possible range of prescriptions that could result from the watershed analyses. Notably, the zone widths are not subject to possible upward revision (i.e., widening). On the positive side in terms of potential environmental protection, the HCP does allow for the current zones to be redefined as totally "no harvest", if justified by watershed analysis.

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Clearly, the long term activities that will take place on the ownership are yet to be determined and presented for public review. The core of this draft HCP is a commitment to do additional planning within the framework of an ill-defined watershed analysis process. At this point in time, the public is largely left with the opportunity to comment on interim measures, themselves uncomfortably flexible, that will be put in place until the "real" planning process is initiated and completed. Does a "plan to do more planning" comply with the ESA?

Briefly, the interim strategy defines riparian management zone (RMZ) widths for Class I and II watercourses, sub-zone bands within Class I and II RMZs and activity constraints across the entirety of the RMZs as well as for the sub-zone bands. Restrictions that apply to all bands for both Class I and II zones include:

- No sanitation salvage or exemption harvest, except as agreed to by state and federal agencies
- Large woody debris (LWD) to be retained, including all presently standing trees not felled by a logger. LWD retention is partially relaxed in the outer portions of the zones, if the slope is less than 50%.<sup>2</sup>

<sup>1</sup> Adding further uncertainty, the protocols by which the watershed analyses will be conducted have not yet been fully developed. The HCP states that watershed analyses will generally emulate the State of Washington-developed protocols but they are to be modified by a joint effort of a committee of agency and PL personnel.

<sup>2</sup> This scheme runs counter to logic, in my opinion. As the main concern is LWD recruitment into stream channels, there should be more stringent retention requirements on gentle slopes, as with steep slopes there is a somewhat higher likelihood of migration of woody material moving down hill into the stream channel.

- Retention of all non-hazard snags
- No herbicides or pesticides
- Equipment exclusion except for roads and permitted crossings. The plan is ambiguous as to new road construction in RMZs; new roads are proscribed only if they are not for the purpose of stream crossings or "when feasible alternatives that would have less environmental impact are clearly not available as determined through consultation with the appropriate agencies." Similar language found throughout the state forest practice regulations provides the basis for numerous exceptions and exemptions from various environmental protection requirements.
- Full suspension cable yarding, when feasible (i.e., logs are not to be dragged along the ground when being yarded, when feasible).<sup>3</sup>
- Harvest entry limited to once every 20 years<sup>4</sup>, with a maximum of 40% conifer basal area removal per entry<sup>5</sup>.

Class I RMZs are defined as 170 feet on each side of the stream bank<sup>6</sup>, measured as "slope distance."<sup>7</sup> The zone is further broken down into three bands:

- A restricted harvest band (RHB) from 0 to 30 feet, frequently referred to throughout the HCP as a "no harvest" band. In fact, harvesting is allowed if justified by a completed watershed analysis.
- A limited entry band (LEB) from 30 to 100 feet in which only "high residual basal area" selective harvesting is allowed that leaves at least 300 square feet of basal area per acre. Harvest entry requires at least 345 square feet of basal area prior to harvest.
- An outer band (OB) from 100 to 170 feet in which "low residual basal area" selective harvesting is allowed that leaves at least 240 square feet of basal area per acre. Harvest entry requires at least 276 square feet of basal area, pre-harvest.

Another limitation is stipulated for Class I RMZs that is unclear as written and apparently subject to changing interpretations by PL.

<sup>3</sup> The original version of this requirement did not include the "where feasible" caveat, which apparently would have excluded logging if full suspension was not possible. This change, then, constitutes another reduction in the overall level of protection.

<sup>4</sup> The initial version of the aquatic conservation strategy, as proposed by the federal agencies, specified a re-entry frequency of 50 years. The change to 20 years occurred during negotiations leading to the January 7, 1998 revised strategy. A twenty year frequency of harvest is obviously much less conservative than a 50 year frequency, provided that all other per entry limits apply to both frequencies, as they have in this case.

<sup>5</sup> This 40% limit is presented inconsistently in the HCP, leaving doubt as to: 1) what is actually intended and, 2) what PL's consultants (R2) based their analyses on. Whereas the summary presentation of the strategy in Volume I and Volume IV refers to 40% conifer basal removal, Table 1 of Volume IV, Part D (page 2) refers to "no more than 40% volume removal." Depending upon which trees are harvested, removing 40% of the basal area could amount to removal of 60-80% of the standing volume. It is possible, then, that PL's consultants based their analyses of potential effects on harvest intensities much lower than will actually occur.

<sup>6</sup> More accurately, the RMZ begins at the edge of the "channel migration zone."

<sup>7</sup> Prior to the release of the draft HCP, the zone widths were to be measured as "horizontal distance." (Source: Section 3 of Part D of Volume IV). For typical slopes in the vicinity of PL's watercourses, a 170 foot slope distance zone is equivalent to a 183 foot horizontal distance zone. In other words, the revised wording in the draft HCP has resulted in a decrease in the overall width of both Class I and II RMZs.

"After each entry, PALCO will retain an additional 10 trees greater than 40 inches DBH per acre on each side of the watercourse. The trees can be counted entirely or partially within the RHB. If trees of this size are not available, the 10 largest trees in the RMZ will be retained."

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The immediate question is: additional to what? It would seem that the reasonable interpretation is: "additional" means in addition to the trees required to be retained in order to meet the 300/240 square feet basal area leave requirements. That is, "additional" would be construed as "above and beyond." This interpretation is consistent with the matrix of properly functioning conditions that was prepared by NMFS and incorporated into the HCP (Table 16 of Volume I) in which a target of 17.4 trees per acre greater than 40 inches DBH for redwood dominated forests (which are most prevalent in the watercourse zones) is stipulated. Noting that basal area leave requirements contained in Table 17 result in the retention of about 7.5 trees per acre greater than 40 inches DBH (all within the Class I LEB), the properly functioning conditions presented in Table 16 could be attained only if the language quoted above is construed to mean "above and beyond." By this interpretation, if there were not at least 10 trees per acre greater than 40 inches DBH in the Class I RHB (inner 30 feet), PL would be required to leave additional large trees (greater than 40 inches DBH, if they exist) within the LEB and OB, above and beyond what is required to meet the basal area leave standards.

However, I was informed in recent conversations with Vickie Campbell and Sharon Kramer of NMFS that PL is interpreting the language in the text in a manner that substantially reduces the habitat benefits generated on the ground. Whereas the text could reasonably be interpreted to mean that these 10 trees per acre greater than 40 inches per acre would be marked and permanently reserved for snag and LWD recruitment, PL has chosen to apply a replacement policy such that any of the subject trees could be harvested if a replacement tree is designated. The effect of this policy would be that few if any of the subject trees would ultimately become snags and LWD. The main point is that there is considerable uncertainty as to what this key clause means and how it will be implemented in the field.

Class II RMZs are defined as 100 feet on each side of the stream bank, measured as slope distance. The zone is broken into two bands:

- A restricted harvest band (RHP) for 0 to 10 feet with "no harvest" unless supported by a completed watershed analysis.
- A selective entry band (SEB) from 10 to 100 feet in which only the "low residual basal area" selective harvesting prescription is available (i.e., 240 square feet residual basal area).

The low and high residual basal area selection prescriptions (300 and 240 square feet, respectively) that are available for the LEB and OB of the Class I and SEB of Class II RMZs are further constrained by a residual size class distribution (Table 17 of the Volume I or Table 4 of Part D of Volume IV, p. 34). This residual schedule describes the distribution of the 300 or 240 square feet of residual basal across 6-inch diameter classes. Table 17 also translates these disaggregated basal area leave requirements into trees per acre for each of the diameter classes. This table is perhaps the most helpful data contained in the HCP for divining the stand-level implications of PL's aquatic protection strategy.

The text describing this table, in both Volumes I and IV, clearly indicates that the schedule constitutes a hard target for basal area retention by tree size class rather than a general advisory. E.G.: "Tree sizes and quantity distribution will be retained as per Table 17." (Volume I, page 67). The table itself states: "Retention requirements are based on basal area not tree number. Number of trees/acre provided for information purposes only."

For present purposes, I will assume the text pertaining to Table 17 means what it says. From that premise, it is possible to infer one key implication: the total acres of land within the Class I and II RMZs that contain late seral stands will not decrease below the current total. That is, harvesting in compliance with Table 17 within RMZs will not eliminate the late seral status of stands in such condition prior to harvest. The pertinence of this inference is discussed in the next section of this document.

Class III buffer widths are a function of side slope and range from 25 to 100 feet. There are no prescribed limits on timber harvest in the zones. The buffers are categorized as equipment limitation zones (ELZ), which means little in terms of on-the-ground activities other than skid trails will be stabilized and watercourse tractor road crossings will be flagged. A major exception is inserted in the Class III buffer language: "Ground based equipment in the ELZ is acceptable if less resource damage will occur by operating in the ELZ, as per an approved THP." This clause almost certainly will lead to boilerplate/generic language justifying ground equipment in the zones, language that is regularly approved by CDF in its review/approval of THPs. Notably, the California Board of Forestry is presently considering regulations that would require much more stringent equipment exclusion zones (EEZ) in Class III watercourses. So, PL's mitigative prescriptions for Class III zones could hardly be described as cutting edge protections, in contrast to their claims to the contrary.

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#### What Will Be The Effect Of These Limitations In The Field?

The HCP does not provide information that would allow the public to independently answer this question or to verify the competency of PL's own answer. If the tables and figures presented in the HCP are taken at face value, PL's answer is that the riparian management zones will undergo a delayed but fundamental shift to late seral forest conditions over the next 70 years. Part C of Volume III contains an un-numbered table and accompanying graph that shows a 223% increase in Class I RMZ late seral acres and a 256% increase in Class II RMZ late seral acres by the year 2073 (the tabular information is also presented in Tables 11 and 12 of Volume I).<sup>8</sup> During this time, young forest stands decrease by 81% in both Class I and II RMZs. Notably counter to the late seral trend, the few acres of RMZ land that are presently occupied by unentered old growth<sup>9</sup> will decrease 51% by 2073.

It is also notable that the late seral acres are projected to actually decrease in both Class I and II RMZs over the first 10 years of the HCP. This is consistent with the fact that PL's timber management program throughout the ownership will continue to deplete total standing inventory for the next 20 years, as will be discussed in more detail later in this memo. But perhaps more importantly, the projected decline in late seral RMZ acres reveals one of two possible fundamental contradictions:

1. If the projection of declining late seral acres in RMZs is correct, it directly contradicts the premise that Table 17 is being implemented as stated in the HCP; i.e., as hard targets. This is because a rigorous implementation of the entry thresholds and leave requirements in Table 17 would prevent any pre-harvest late seral acres from losing that status.
2. If, alternatively, harvesting will comply faithfully with Table 17, the implication is that the PL's harvest planned for the first decade is highly likely to be in non-compliance with the California SYP regulations. This is because the harvest projections are premised in part on a conversion of late seral stands in RMZs to faster growing younger stands; a conversion that Table 17 will not allow. Since the planned harvest level for the first decade is set as high as possible under the state regulations, any overestimation of growth (which faithful adherence to Table 17 would create) renders the harvest level invalid.

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As to stand-level effects of the interim aquatic conservation strategy, the draft HCP contains only isolated pieces of information that enables the committed reader to partially infer how the RMZ harvesting prescriptions will alter stand conditions. For Class I RMZ/LEB stands presently below 345

<sup>8</sup> These projected increases in late seral acres are obviously very dependent upon PL's definition of late seral. Like most industrial timberland owners in California, PL employs a very generous definition of late seral that enables stands as young as 50 years to be so classified. In my opinion, a qualified expert (e.g., a forest ecologist or wildlife habitat specialist) should be asked to carefully examine PL's late seral definition to determine its appropriateness. There is evidence in the HCP (Volume III, page 30) that PL's protocols are biased and overstate average tree size, which is a key criterion in late seral determination.

<sup>9</sup> Of the 28,000 acres of land associated with Class I and II RMZs, only 4% is presently occupied by unentered old growth.

square feet of basal area, there will be no harvest until such time that the 345 square foot "entry trigger" is surpassed. Likewise, for Class I RMZ/OB and Class II RMZ/SEB stands presently below 276 square feet entry trigger. The HCP presents no information as to how many acres fall into either category now or in the future. For RMZ stands that presently have more stocking than the entry triggers, the intensity of harvest is a function of the current or pre-harvest (for stands that may be entered later than the first decade) stocking level. Again, the HCP fails to provide any direct information on current RMZ acres by stocking level. However, un-numbered tables in Part C of Volume III<sup>10</sup> indicate that current stocking on Site I (productivity class) land is as high as 660 square feet per acre and that Site II lands carry stocking as high as 568 square feet per acre. So, there is certainly a potential for intensive volume removals even under the RMZ "late seral" harvesting prescription.

For stands that are to be harvested down to the minimum requirements of the aquatic strategy, what would stand conditions approximate? If, despite the evidence discussed above regarding internal contradictions, PL were to comply with the residual basal area requirements presented in Table 17 of Volume I, Class I LEB stands would have 108 trees per acre with 5 trees per acre larger than 42 inches DBH. My rough approximation of this situation is that it would be a 2-3 layered canopy that is close to but not full crown closure (as viewed vertically from overhead), assuming that the partial harvest entry did not result in significant damage to the residual crowns<sup>11</sup>. For Class I OB and Class II SEB stands, post-harvest conditions would involve 125 trees per acre with the 5 largest trees per acre being in the 36 to 40 inch size class. This total number of trees per acre and their size class distribution would not be significantly different from the LEB (300 square foot) post-harvest stands; i.e., at least 2 canopy layers and substantial crown closure.

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In at least two places in the HCP, statements are made or tabular information is presented indicating that, in PL's estimation, RMZ average post-harvest crown closure will exceed 80%. PL statements pertaining to their estimates of post harvest canopy being in excess of 80% can be found on page 2 of part H of Volume III as well as in a table and supporting text found in Section 5 of Part D of Volume IV (Incremental Benefit Analysis). Of note, first, is that this estimated 80% total canopy closure (i.e., overstory plus mid and under stories) falls well short of the desired future condition for riparian zones that is presented in Table 16 of Volume I (page 61), where the target is 85% overstory tree canopy closure. Second, the HCP offers no data on either current or future stand-level conditions in the RMZ that would support the claimed 80% canopy closure.

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#### **PLANNED TIMBER HARVESTING UNDER THE DRAFT PACIFIC LUMBER SUSTAINED YIELD PLAN WILL EXACERBATE RATHER THAN MITIGATE IMPACTS ON LISTED SPECIES**

The PL SYP presents a timber management program that entails a fundamental shift to high-impact, short-rotation, even-aged management in which inventories of mature timber will be substantially depleted over the next several decades. In fact, PL is, for the first decade, planning to harvest to the maximum extent allowable under California's very lax long term sustained yield regulations.<sup>12</sup> For the first two decades, total harvests exceed total growth by 32% and 5%, respectively. Total harvest decreases each decade, for 60 years.

PL's harvest plan calls for the continued liquidation of the remaining old growth stands outside of the protected areas. In the first decade alone, 2,236 acres of old growth will be clearcut. Company-wide old growth acres drop by 50% in the first 3 decades and by 66% by decade 6. Of the 2.3 billion board

<sup>10</sup> The table is entitled: "Pre-Harvest Stand Conditions for Site I Lands Reported by Prescription Group." The entirety of Part C, Volume III has no page numbers, as well.

<sup>11</sup> If residual crown damage is defined to include the dislodging of accumulated woody debris in the upper canopy layer (as would be appropriate with respect to marbled murrelet habitat), then it is my judgement that the PL late seral harvesting prescription could not be implemented without significant damage. It is likely that PL's selection harvesting within RMZ would, in fact, dislodge most of the accumulated woody debris in the upper crowns.

<sup>12</sup> I am not aware of any other SYP in preparation in California that schedules harvest levels so high as to be constrained by the LTSY regulation.

feet of timber to be harvested in the first decade, 711 million board feet (30%) come from the harvest of old growth timber. By decade 6, the old growth is all but gone, contributing but a mere 9 million board feet of harvested volume. Late seral acres drop by 66% in the first 3 decades<sup>13</sup>, while forest openings (recent clearcuts) increase by 300% in just 2 decades and the area occupied by young plantations increases by 193% by decade 3.

These company-wide trends are accomplished primarily through the implementation of 20-40 acre clearcuts with planned subsequent rotations of 50-80 years. Of the 54,382 acres scheduled for harvest in the first decade, 34,903 acres (64%) will be clearcut, with 90% of those acres being planned for 50 or 60 year subsequent rotations with intensive treatments including pre-commercial thinning, herbicide applications and fertilizer application. With the exception of snags, there will be few if any natural forest attributes associated with these intensively managed plantations, primarily comprised of Douglas fir.

In the first decade, 75% of all harvest areas will involve tractor yarding as opposed to less impactful cable yarding systems. In decade 2, that proportion increases to 84%.

#### **Spatial Intensity Of Planned Timber Harvesting Is Not Revealed in the Draft HCP/SYP**

A keynote of environmental planning under both state and federal statutes is the assessment of potential adverse cumulative environmental effects at a meaningful geographic scale extending beyond the boundaries of the proposed project. Under California's forest practices act, the expectation is that cumulative effects analyses, especially when conducted within the context of a sustained yield plan, will focus on spatial delineations called "planning watersheds." Planning watersheds, which average 10 to 20 thousand acres, have been delineated by state water resource personnel and are correlated with topographic and drainage patterns across the landscape. At the scale of a planning watershed, it is possible to ascertain the potential contributory effects of planned ground disturbing activities in conjunction with other activities as well as resource sensitivities within a geographic area united by common watershed drainage patterns.

In stark contrast, the PL Sustained Yield Plan is structured in a manner that largely precludes the public from meaningfully understanding the spatial (i.e., landscape level) distribution of the proposed harvesting program. Despite written requests to the contrary from the California Department of Forestry, the Department of Fish and Game, and the Regional Water Quality Control Board, PL has released an HCP/SYP that is structured around five very large "watershed analysis areas" (WAA). These WAAs range in size from 55,000 acres to 426,000 acres and each WAA encompasses numerous planning watersheds. At the highly aggregated scale of a WAA, it is impossible to assess the extent to which individual planning watersheds are being cumulatively impacted by PL and other industrial timber harvesting and road building activities.

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<b>PL WATERSHED ASSESSMENT AREAS</b>			
	<b>Size (Acres) &amp; PALCO Acres</b>	<b>Number of Planning Watersheds Contained Therein</b>	<b>Principal Watercourses</b>
<b>WAA 1: Humboldt Bay</b>	128,590  38,777	14	Elk River, Freshwater Creek, Jacoby Creek, Salmon Creek
<b>WAA 2: Yager</b>	84,554  34,107	13	Yager Creek, Lawrence Creek

<sup>13</sup> Phoenix-like, acres of late seral begins a long rebound after the trough in decade 3.

<b>WAA 3:</b> <b>Duzen</b>	<b>Van</b>	55,341 <b>24,934</b>	7	Van Duzen River,
<b>WAA 4:</b>	<b>Eel</b>	425,946 <b>75,457</b>	46	Eel River, South Fork Eel, Larabee Creek
<b>WAA 5:</b> <b>Matthole</b>	<b>Bear-</b>	304,744 <b>34,528</b>	14	NF Mattole River, Bear River

In fact, the sustained yield planning regulations (Section 1091.6(c)(1)(A) of the forest practice regulations) expressly state that a SYP shall include estimates of the stand structure type acreage and percent composition for all planning watersheds, by decade. State agency personnel reviewing prior drafts of the PL SYP requested this information at the scale of planning watersheds rather than the highly aggregated "watershed assessment areas." Despite these state agency requests, PL has persisted in releasing a HCP/SYP that fails to include this information and in which planning watershed-level effects are impossible to determine. Likewise, PL has failed to comply in a reasonable manner with 1091.6(c)(2)(A) which requires a map that shows all proposed new, reconstructed, and abandoned roads. Map #8 of Volume V purportedly provides this information. But, in fact, the map is at a scale that renders it largely unintelligible. It is impossible, for instance, to distinguish proposed new roads from "other dirt existing" roads.

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PL's intransigence notwithstanding, it is possible to still acquire some insight into the intensive nature of the planned timber harvesting activities. In the first decade alone, PL is planning to conduct timber harvesting on 26% of its forested property—over 54,000 acres of timber harvesting. Of this total area of timber harvest in the first decade, 70% is even-aged management (clearcutting and seed tree cuts). And of the land scheduled for clearcutting and seed tree cutting, 86% will be committed to either 50 or 60 year rotations from that point forward. These very short rotations fall far short of either biological or ecological maturity, fundamentally undermining PL's basic assurance of providing for late successional and mature forest conditions across their ownership. Additionally, the HCP/SYP fails to include a map of planned harvest areas in the first decade, even though it is expressly required by 1091.6(c)(2)(B).

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At the WAA scale, PL intends to harvest over one-third of its property in WAA 1 and WAA 2, in the first decade alone. In both of those WAAs, 70% of the harvesting will be clearcutting and seed tree cutting. Though PL fails to provide the information, it is reasonable to assume that the intensity of harvesting within the planning watersheds comprising WAA 1 and WAA 2 will range above and below the 33% total harvest (as a percent of PL land area). At this intensity of harvesting, the likelihood of significant adverse cumulative impacts to water quality and beneficial uses is extremely high.

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<b>FIRST DECADE HARVESTING (ACRES)</b>				
	<b>Even-Aged Harvests</b>	<b>Partial Harvests</b>	<b>Total</b>	<b>% Even-Aged</b>
<b>WAA 1:</b> <b>Humboldt Bay</b>	8,617	4,143	12,760	68%
<b>WAA 2:</b> <b>Yager</b>	3,172	2,639	5,811	55%
<b>WAA 3:</b> <b>Van</b>	2,889	1,257	4,146	70%



<b>Duzen</b>				
<b>WAA 4: Eel</b>	18,274	7,663	25,937	70%
<b>WAA 5: Bear-Matthole</b>	4,794	745	5,539	87%
<b>TOTAL</b>	37,921	16,451	54,382	70%

Other data reveal the intensity and potential environmental implications of PL's planned timber harvesting activities. With respect to logging method, tractor logging is substantially more impactful with respect to soil disturbance, soil compaction, and erosion potential. This is especially so on steep areas draining into fish-bearing watercourses, a description that fits much of the PL property. Despite the fact that other industrial timberland owners on the North Coast are shifting to cable yarding systems, PL proposes to increase reliance on tractor logging. In the first decade, property-wide, PL will employ tractor logging on 74% of its harvesting operations. At the WAA-level, the reliance on tractor logging ranges as high as 91% (WAA 1 And WAA 2). In the second decade, tractor logging comprises 84% of total company-wide harvesting, with tractor reliance in WAA 1 and WAA 2 in excess of 93%.

<b>PERCENT TRACTOR LOGGING</b>		
	<b>1<sup>ST</sup> Decade</b>	<b>2<sup>ND</sup> Decade</b>
<b>WAA 1: Humboldt Bay</b>	91	93
<b>WAA 2: Yager</b>	90	93
<b>WAA 3: Van Duzen</b>	79	89
<b>WAA 4: Eel</b>	67	75
<b>WAA 5: Bear-Matthole</b>	43	56
<b>TOTAL</b>	74	84

Another indication of the intensity and environmental implications of PL's proposed timber harvesting in the first and subsequent decades is the near-term focus on converting old growth and late successional (i.e., mature) stands to young plantations. In the first decade, over 60% of the proposed timber harvesting is scheduled to take place in old growth and late successional stands. In WAA 1, fully 85% of all first decade harvesting will take place in old growth and late successional stands; the total is 70% for WAA 3.

<b>DECADE 1 % HARVESTING, OLD GROWTH/LATE SUCCESSIONAL STANDS</b>	
<b>WAA 1: Humboldt Bay</b>	85
<b>WAA 2: Yager</b>	32
<b>WAA 3: Van Duzen</b>	70
<b>WAA 4: Eel</b>	59

WAA 5: Bear-Mattole	35
TOTAL	61

Page 65 of Section C of Volume III of the HCP/SYP presents a table (reprinted below) that is not anywhere discussed in the PL documents. Nonetheless, it is highly revelatory. In the first decade, PL intends to commit 35,000 acres to "intensively managed clearcuts" which entails of suite of activities beginning with clearing the standing trees, treating the remaining brush with herbicides and prescribed fire, planting Douglas fir seedlings (predominantly), thinning the stand at one or more intervals during the first 25 years and ultimately repeating the process every 50 years. Cumulatively, these practices are widely and aptly known as "tree farming." The forest cover that short rotation tree farming creates over the landscape possesses very little in common with natural forests and even less in common with mature natural forests.

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PLANNED INTENSIVE MANAGEMENT TREATMENTS, 1 <sup>ST</sup> DECADE	
Treatment	Acres
Intensively Managed Clearcuts	34,720
Site Preparation (60% of clearcuts)	20,832
Planting (100% of clearcuts)	34,720
Brush Control (80% of clearcuts)	27,776
Precommercial Thin (50% of clearcuts)	17,360

#### Summary Comments on the Planned Timber Harvesting Under the SYP

In summary, the draft HCP/SYP presents a plan to convert the majority of a 203,000 acre land holding to high-intensity, short-rotation tree farming, interspersed with isolated bands of selectively harvested natural forests associated with the Class I and II watercourses, marbled murrelet conservation areas and old growth reserves sold to the state and federal governments. The managed areas of the property, which account for at least 80% of the total acres, will be converted to highly artificial plantations, lacking in natural biodiversity and reliant upon regular human intervention in order to achieve planned growth rates; growth levels that if not achieved invalidate intended harvest levels over the first two decades of the plan<sup>14</sup>. Aside from the intended treatment of the riparian management zones, this plan calls for a forest conversion no different than what has been associated with the widespread practices that have defined industrial timberland management for the past half century throughout the western United States. Outside of the watercourse protection areas, PL's planned timber harvesting charts a course diametrically at odds with the fundamental purpose of the federal statute under which their plan is submitted—habitat conservation.

#### WATERSHED ASSESSMENT METHODOLOGY EMPLOYED IN THE HCP/SYP FAILS TO COMPLY WITH REGULATORY REQUIREMENTS

<sup>14</sup> The link between future growth and first decade harvest levels is found in the long term sustained yield (LTSY), as stipulated in Section 1091 of the Forest Practice Regulations. The treatment of LTSY in the PL SYP is the subject of another EPIC/Sierra Club white paper.

Based upon my experiences having developed an SYP for another industrial ownership in California, it is my opinion that PL's draft HCP/SYP falls substantially short of the watershed assessment that is necessary in order to be in compliance with the SYP forest practice regulations (14 CCR 1091.6). If the same scrutiny and review criteria are used on PL's HCP/SYP as were used by the state reviewing agencies<sup>15</sup> on other SYPs such as those submitted by Georgia-Pacific, Louisiana-Pacific, Sordna, Collins Pine, and Latour State Forest, the PL plan would clearly not be judged as sufficient.

Based upon the title on the cover, Volume II apparently constitutes PL's watershed assessment.<sup>16</sup> In fact, Volume II is a compilation of numerous disjointed and un-integrated topics, largely comprised of cursory and/or conceptual discussions. Part D (Landscape Assessment of Geomorphic Sensitivity) and Part E (Assessment of Watershed Disturbances and Recovery) are the only sections that credibly could be considered as directly responsive to 14 CCR 1091.6. Both Part D and E are comprised of very brief and superficial conceptual discussions about analyses that were purportedly conducted. However, no results are presented (for Part D) nor are any field data presented that may have been utilized in any analyses. Of note, statements made in Part D directly contradict assumptions made in Part E. The disjointed and incomplete nature of Volume II lends a strong impression that the entire document was caged together in a very short time period.

As referenced in Part E, Part D constitutes a watershed sensitivity analysis. In fact, it is 3.25 pages of conceptual discussion of an "area-wide assessment of relative watershed," the results of which are not presented. Aside from the fact that no results or conclusions are presented, the methodological discussion reveals ad hoc and arbitrary procedures that are unsupported by scientific literature. A sensitivity rating scale is presented that lacks explanation and justification as to the numerical break points (e.g., between moderate and high sensitivity categories). In the same fashion, watershed sensitivity factors (numerical indices) for geomorphology, geology, soils and slope are presented without explanation or justification, leaving the reader with the impression that they have been arbitrarily assigned. There is no explanation as to how these factors were employed; page 3 of Part D merely states that "these individual resource ratings were then accumulated and grouped." How and for what purpose?

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Part E briefly describes what is admitted to be a "simplistic disturbance index" purportedly for the purpose of evaluating the relative magnitude of watershed disturbances as a function of past land management activities. PL's disturbance index (DI) is patterned after the USDA Forest Service's equivalent roaded acres (ERA) methodology, but with critical differences that all but eliminate any potential usefulness of the DI. In particular:

- PL arbitrarily assumes that land disturbances including roads and clearcuts cease to have any physical effects (such as accelerated soil erosion and sediment yield) after only 10 years, and that watershed recovery from a disturbance is linear. This assumption is clearly not supported by known watershed processes, particularly as related to roading. By contrast, the ERA method assumes that disturbances such as roads have at least a 30 year effect on the land. In fact, unpaved roads have continuing effects in terms of accelerated soil erosion and sediment yield as long as they exist. This is all the more true when roads are not designed and maintained to state of the art standards, as is the case with the preponderance of PL's road network.

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<sup>15</sup> I.E., Department of Forestry and Fire Protection, Department of Fish and Game, Department of Mines and Geology, Water Resources Control Board.

<sup>16</sup> "Watershed assessment" in this context is apparently distinct from the watershed analysis referenced extensively in Volume IV that is to be conducted over the coming three years. This yet to be conducted watershed analysis is the lynchpin of the federal (HCP) aspect of this compiled federal/state document. In contrast, "watershed assessment" in the context of Volume II relates to the SYP state regulations. Indicative of the disjointed nature of this combined HCP/SYP document, there is no coordination or even cross-referencing between Volumes II and IV and no apparent recognition of the substantial conceptual and analytical overlaps that clearly exist.

- As if to underscore its failure to adequately address known watershed processes, roads are not even explicitly considered in the DI methodology. Instead, PL states without explanation or justification that roads are implicitly addressed ("correlated") through the yarding system coefficients. In fact, the yarding system coefficients employed in the DI are grossly inconsistent with the actual erosional contributions of roads. By PL's own admission elsewhere in the HCP/SYP (Volume IV) as well as in Part D<sup>17</sup>, roads are at least 10 to 30 times more impactful than even clearcutting, in terms of accelerated erosion and sediment yield. PL's acknowledgement notwithstanding, the DI calculus assumes that roads and associated skid trails are only 2.5 more impactful than helicopter logging (i.e., no skid trails and essentially no new roads) and only 1.66 times more impactful than cable yarding.
- Furthermore, the DI rating coefficients for silviculture practices and yarding method appear to be totally ad hoc, lacking explanation, justification and compatibility with the scientific literature. They are described as "first-cut estimates" based upon interdisciplinary professional judgement, but without further explanation. PL suggests that these first-cut estimates will need to be refined in the future but it fails to reveal when and under what protocols such refinements will occur.

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In short, the DI (and all of Volume II, Parts D and E) largely present only the illusion of a watershed impact assessment, yielding highly stylized and flawed results of limited to no utility to environmental planning.

#### THE LTSY CALCULATION PROCESS AND FINAL RESULT FAIL TO COMPLY WITH REGULATORY REQUIREMENTS

Forest Practice Regulations, Section 1091.4.5, in conjunction with the definition of LTSY found in Section 895.1, clearly require that:

- 1) LTSY shall be defined as the "average annual growth sustainable by the inventory predicted at the end of a 100 year planning period"
- 2) "The average annual projected harvest over any rolling 10-year period shall not exceed the long term sustained yield level for a SYP submitter's ownership."

Despite this clear regulatory direction, the LTSY as determined in the PL HCP/SYP was based upon an entirely different and self-serving definition keyed to the average periodic increment over the last 4 decades of the planning period (Volume I, page 27 and Volume III, page 29). Nowhere in the forest practice rules, Section 1091, is the SYP submitter given the prerogative to utilize a definition of LTSY other than that clearly stipulated in Section 895.1

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By PL's own admission, the definition of LTSY used in their HCP/SYP results in a 8.6% overstatement of the true LTSY associated with the harvest schedule that forms the basis of the SYP. (Page 6 of PL's Answers to Sufficiency Review Comments, dated April 1, 1997). PL's bald assertion in their "Answers" document that, had a new harvest schedule been developed using the proper definition of LTSY, then the computed LTSY would have been higher than that contained in the schedule forming the draft SYP is unsupported by any evidence and, in my opinion, likely to be utterly false. The plain fact is that the LTSY computed in the draft SYP is both out of compliance with regulatory requirements and at least a 8.6% overstatement of the true long term sustained yield for their property.

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This overstatement of LTSY is by no means merely an analytical triviality. As revealed in Table 9 on page 29 of Volume I, the planned first decade harvest level under the SYP is set at the maximum

<sup>17</sup> Part D, page 1, states: "Watershed effects may not occur for a number of years following land management, and then only in response to a triggering climatic event." Part D, page 3 states: "Watershed history documents effects that can last for a decade, or longer." Inexplicably in light of these statements, the method presented in Part E is based upon the central assumption that all watershed effects from a disturbance cease in 10 years.

allowed under the forest practice regulations; i.e., first decade harvest is set equal to the mis-calculated LTSY (234 million board feet). By PL's own admission, then, the first decade planned harvest level is at least 29 million board feet in excess of the maximum allowed under the Forest Practices Act.

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Equally important, the planned first decade harvest level is justified by projected future increases in stand growth in response to largely untested intensive stand treatments. This process of taking immediate harvesting credit for the promise of increased growth far into the future is known in the forestry profession as the "allowable cut effect" (ACE). ACE has been widely recognized as a practice rife with abuse and almost always associated with non-sustainable/depletionary harvest patterns. And, in fact, CDF expressed just this concern in its sufficiency comments submitted to PL on February 20, 1997 (comment TM-11 on page 5; document incorporated by reference). Despite CDF's pointed questioning of the validity of a PL's harvest schedule and its fundamental reliance upon the allowable cut effect of questionable projections of future growth, PL has stood fast and refused to produce a plan formulated on a less speculative foundation. The extreme nature of the PL planned harvest schedule is, in my opinion, the antithesis of a conservative and fact-based approach to forest management; this despite the fact that the planned harvest schedule is being presented to the public as a key component of a plan for conserving multi-species habitats and mitigating the potential effects of issuing a "no take" permit. I find the very premise of the PL HCP/SYP to be nothing short of laughable.

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**PL'S MODELLING OF LATE SERAL STAND CONDITIONS IS FUNDAMENTALLY FLAWED, LEADING TO AN OVERESTIMATION OF THE FUTURE EXTENT OF LATE SERAL STANDS WITHIN THE OWNERSHIP**

As noted in footnote 13 earlier in this comment letter, the HCP/SYP predicts that starting in decade 4 there will be a significant recovery in the number of acres occupied by late seral forest stands. (This, of course, is projected to occur after the first three decades in which the current extent of late seral habitat is reduced by two-thirds.) But it is my judgment that the projected rebound of late seral acres starting in decade 4 is illusory rather than real and the direct result of an invalid definition of late seral forest structure. By any reasonable definition of late seral forest structure, the harvest regimes that form the basis of the PL SYP will result in the permanent elimination of late seral structure throughout the vast majority of the ownership.

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The incredulity of the PL's working definition of late seral forests is succinctly revealed on page 17 of Volume I of the HCP/SYP, where it is stated that late seral forest "occurs in stands as young as 40 years but more typically in stands about 50 to 60 years old and older." As a professional forester who has examined stand conditions and seral stage development patterns in forest types throughout the world, it is my judgement that 40 to 60 year old managed plantations—as contemplated in the PL HCP/SYP—are extremely unlikely to possess the full range of characteristics that are associated with late seral forests. While the average diameter of the rapidly-grown trees may meet the 24" threshold stipulated by the Board of Forestry's guidelines, other essential characteristics such as decadence and large woody debris are extremely likely to be nowhere present in such young stands. By ecologically valid standards, managed forest stands are not likely to truly achieve late seral status for a period of time at least twice as long as assumed by PL.

I note for the record that my judgement pertaining to the incredulity of PL's working definition of late seral is corroborated by the National Marine Fisheries Service in a written evaluation they prepared of the effectiveness of the forest practice rules.<sup>18</sup> In their critique of the forest practice rules, NMFS states (on page 6):

The forest practice rules "definition uses the California Wildlife Habitat Relationship (WHR) classification to define "late succession." A WHR class 5M equates to a stand with

<sup>18</sup> Effectiveness of the California Forest Practice Rules to Conserve Anadromous Salmonids, Analysis by the National Marine Fisheries Service, Protected Resources Division, Sana Rosa and Arcata, CA, Draft-May 22, 1998. By reference, here, I incorporate this document into my comments submitted into the public record for the PL HCP/SYP.

November 13, 1998

medium/large trees greater than 24" dbh with a minimum of 40% canopy cover. A forested stand exhibiting these characteristics will not, in many stream systems, provide adequate shade, microclimate regulation, bank and slope stability, and woody debris inputs to maintain properly functioning aquatic habitat." And: "Incorrect definition is misleading as to what stand conditions are appropriately considered "late successional."

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In summary, 40-60 year old plantations of geometrically-planted monocultures of Douglas fir are extremely unlikely to attain any reasonable definition of late seral. Accordingly, PL's projection of a recovery of late seral acres beginning in decade 4 is without foundation. The rapid loss of late seral forest in the first 3 decades will be a permanent change to the landscape ecology of the ownership, in the face of the short-rotation management prescriptions that dominate the PL HCP/SYP.

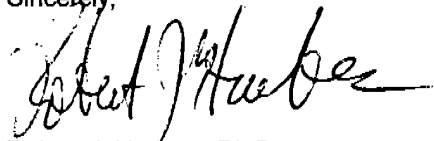
**PL HAS FAILED TO SUFFICIENTLY RESPOND TO NUMEROUS TECHNICAL CRITICISMS AND REQUESTS MADE BY STATE REVIEW AGENCIES**

As noted above with respect to the LTSY calculation, the administrative record of the agency review of earlier drafts of the PL HCP/SYP reveals an extensive array of comments and requests for information and/or revisions to the HCP/SYP with went unheeded by PL. The state agency review comments were initially submitted to PL on February 20, 1997. The "sufficiency review comments" document submitted to PL contained over 400 specific points and requests, spanning over 80 pages. On April 1, 1997—a mere 39 days later, PL responded in a written document to the state agencies. In this document, the vast majority of responses were of the form: "PL will consider the comment in future drafts of the HCP/SYP." Not surprisingly, on April 25, 1997, CDF (writing on behalf of the other state reviewing agencies, as well) responded to PL with another letter in which remaining agency concerns were expressed. The April 25<sup>th</sup> letter to PL contains well over 75 instances where the state review agencies judged PL's prior responses (April 1) to be inadequate. Despite this, my review of the public review draft of the HCP/SYP—released one year later—reveals that PL failed to make virtually any change in response to the state agencies' lingering issues expressed the prior year. With respect to every unresolved substantive issue such as LTSY and the spatial scale of the information presented in the HCP/SYP, PL has simply refused to make requested changes in its document. The record of correspondence between the agencies and PL reveals, in my judgement, a clear pattern of intransigence on the part of PL.

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Were approval of this HCP/SYP not a requirement for the closure of the Headwaters Acquisition deal, I cannot imagine that the stubborn refusal of PL to adequately respond to state agency comments would result in anything but outright rejection of this fundamentally flawed HCP/SYP.

Sincerely,



Robert J. Hrubes, Ph.D.  
Consulting Forester and Resource Economist

**ROBERT J. HRUBES, PH.D.  
PRINCIPAL**

***EXPERTISE***

**Forest Management  
Resource Economics  
Management Sciences**

**Certification Systems  
Fiscal Impact Analysis  
Wildland Planning**

***EDUCATION***

**University of California, Berkeley, CA, Ph.D., Wildland Resource Sciences, 1981.**

**University of California, Berkeley, CA, M.A., Economics, 1978.**

**University of Michigan, Ann Arbor, MI, M.S., Resource Systems Management, 1975.**

**Iowa State University, Ames, IA, B.S.F., Forest Management and Outdoor Recreation Management, 1973.**

***PROFESSIONAL EXPERIENCE***

**Managing Principal, Robert Hrubes & Associates, forestry and resource economics consultants, Pt. Richmond, CA, 1994-present.**

**Managing Principal, LSA Associates, Inc., environmental planning consultants, Point Richmond, CA, 1988-1994.**

**Acting Group Leader, Land Management Planning, USDA Forest Service - Regional Office, San Francisco, CA, 1988.**

**Principal Forest Economist/Operations Research Analyst, USDA Forest Service, Management Sciences Staff, Berkeley, CA, 1980-1988.**

**Research Forest Economist and Research Forester, USDA Forest Service, Pacific Southwest Forest Experiment Station, Berkeley, CA, 1975-1980.**

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**Page 2**

**Teaching Fellow, School of Natural Resources, University of Michigan, Ann Arbor, MI, 1973-1975.**

**Forestry Aid, Seasonal 1971, 1972, 1973, 1974. USDA Forest Service, Okanogan National Forest.**

***PRINCIPAL CURRENT AND PAST PROFESSIONAL RESPONSIBILITIES***

**President and principal consultant of Robert Hrubes & Associates, a Northern California forestry and resource economics consulting firm.**

**Consultant specializing in wildland management planning, sustainable forestry analysis, resource economics analysis, operations research analysis, forest management, and the application of management science techniques and principles to a broad range of resource management problems.**

**Responsible for the formulation and analysis of alternative resource management policies with respect to clients' underlying goals and objectives.**

**On an as-needed basis, individualized consultation with clients designed to facilitate the elaboration and ranking of alternative courses of action.**

**PAST PROFESSIONAL RESPONSIBILITIES**

**Principal-in-Charge of Northern California environmental policy analysis and office administration of LSA, a 125-person environmental consulting firm with offices in Point Richmond, Riverside, and Irvine, California.**

**Acting Land Management Program Leader, USDA Forest Service, San Francisco, CA. Overall responsibility for guiding the Forest Service's regional and field efforts in the development and implementation of**



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**Forest Plans; developing strategies for responding to Plan appeals; and leading the Regional Office and Forests in all aspects of environmental analyses and the production of environmental documents under NEPA and other federal statutes.**

**Principal operations research analyst in the USDA Forest Service, Management Sciences Staff, with primary responsibility to provide expertise in resource economics and forestry. Conducted a wide range of studies for agency clients on subjects such as: impacts on timber management of environmental constraints, facilities management, program planning, multiple criterion decision-making methods.**

**USDA Forest Service research scientist responsible for conducting research on the economics of wildland management.**

#### ***PROFESSIONAL AFFILIATIONS***

**Society of American Foresters  
The Forest Stewards Guild  
California Licensed Foresters Association**

#### ***REGISTRATION***

**California Registered Professional Forester #2228**

#### ***BOARD MEMBERSHIPS***

**Chair, Board of Directors, The Forest Stewards Guild, Santa Fe, New Mexico**

**Member, Board of Directors, The Forest Stewardship Council, Oaxaca, Mexico (1993-1997)**

**Member, Advisory Board, University of California Forest Products Laboratory, Richmond, California**

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**Member, Advisory Board, The Center for Watershed and Community Health, Eugene, Oregon**

**Member, Scientific Advisory Board, Scientific Certification Systems, Oakland, California**

**Member, Advisory Board, The Institute for Sustainable Forestry, Redway, California**

**Member, Advisory Board, The Pacific Forest Trust, Anderson Valley, California**

**Member, Advisory Board, The Public Forestry Foundation, Eugene, Oregon (1993-1994)**

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**An Analysis of the Possible Regional Economic Benefits of Small Scale Sustainable Forestry: Determining the Possible Regional Supply of Certified Timber. A Project Report of the Institute for Sustainable Forestry. Redway, CA. August, 1995. (co-author with P. Harper and T.Metz)**

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**Final Report: Forest Practice Rules Recommendations/Wildlife.** Prepared for the California Department of Forestry and Fire Protection. September 1989.

**The Economic Benefits of Wetlands: A Review of the Literature and Application to the Mission Bay Project (with Fred Euphrat).** Prepared for the Mission Creek Conservancy. September 1989.

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